

REMARKS

Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the foregoing amendments and the following remarks.

The Office Action includes a discussion as to the broad interpretation given certain terms appearing in the claims that are referred to in the Office Action as relative terms. Applicants only would add that such interpretations should also be given a meaning that is NOT inconsistent with the disclosure and teachings of the subject application.

Claims 17-19 are pending in the subject application. Claims 17 and 19 are withdrawn from consideration. In view of the Examiner's earlier restriction requirement, Applicants reserve the right to present the above-identified withdrawn claims in a divisional application.

Claim 18 stands rejected under 35 U.S.C. §102 and/or 35 U.S.C. §103. Claim 18 also stands rejected under the judicially created doctrine of obviousness-type double patenting. In addition, claim 18 was objected to because of an identified informality.

Claim 18 was amended to address the Examiner's objection(s) and for clarity. Claims 20-25 were added to more distinctly claim aspects/ embodiments of Applicants' invention. The amendments to the claims are supported by the originally filed disclosure.

The specification was objected to and correction required. The specification was amended herein to address the Examiner's objections. The amendment to the specification does not introduce new matter because they either are editorial in nature or are supported by the originally filed disclosure.

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Included herewith is a marked-up version of the amendments to the subject application by the current amendment. The marked-up versions are found on the pages captioned or entitled "Details of Amendments" that follow the signature page of the within Response.

NON-STATUTORY/ OBVIOUSNESS DOUBEL PATENTING REJECTION(S)

Claim 18 stands rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claim 12 of U.S. Patent No. 6,352,765 (Iwata '765) or over claims 30-32 of U.S. Patent No. 6,150,038 (Hirokane '038). The Examiner further provided the reasoning why there was no statutory bar against this double patenting rejection. The following separately addresses each of these obviousness-type double patenting assertions.

USP 6,352,765 (Iwata '765)

Applicants differ submission of a terminal disclaimer and/ or addressing the within double patenting rejection until, and as when claim 18 is indicated as containing allowable subject matter.

USP 6,150,038 (Hirokane '038)

The above-referenced Office Action asserts the obviousness-type double patenting rejection based on claims 3-32 of Hirokane '038 providing as a basis that the product disclosed in Hirokane '038 is substantially identical in structure and function as the magneto-optical medium of the present invention and thus is claimed to inherently meet the claimed invention. Applicants respectfully traverse.

It is clear from Hirokane '038, with reference also to figures 1-3 thereof, that the first magnetic layer 1 is being heated by a light beam so that one portion of the first magnetic layer 1, namely area 11 (i.e., the area shown in the figures as sloped hatch lines in the first magnetic layer), exceeds the Curie temperature of the first magnetic layer. As indicated in Hirokane '038, it is thus possible in this area to form an area whose magnetization disappears due to the rise in temperature.

It also is provided therein that this area 11 also makes it possible to prevent the domain wall from shifting from the rear end of the optical beam. See col. 7, lines 15-53. It also is clear in Hirokane '038 that when the isolated domain 7 is located at the front end, the domain wall 5 shifts in the first magnetic layer in the same manner as described for the conventional medium, in particular the domain wall 5 shifts to an edge 12 of the Curie temperature area 11.

It thus is clear that in Hirokane '038 the heating of the magneto-optical medium is such as to create temperature zones within the light beam, so the highest temperature is created to raise the temperature in the so-called Curie temperature area 11 to a Curie temperature of the first magnetic layer. Thus, it necessarily follows that when the light beam is applied to the medium for reproduction in Horokane '038, the portion of the first magnetic layer in the rear part of the light beam corresponds to the Curie temperature area 11. As noted in Yonezawa (USP 6,122,229) when the switching layer exceeds its Curie temperature it loses its coercivity (see col. 3, lines 10-12 thereof). Consequently, when the Curie temperature area 11 of the first magnetic layer 1 in Hirokane is at its Curie temperature, it cannot be said that Hirokane can inherently disclose a magnetic layer, as set forth in claim 18, in which the first magnetic layer has a larger magnetic wall coercivity at a rear part of the light beam spot than a front part of the light beam spot, when a light

beam whose intensity is controlled to be a predetermined intensity for reproducing a signal is emitted onto the magneto-optical recording medium while the light beam being moved relatively with respect to the magneto-optical recording medium. Applicants thus respectfully submit that the magnetic medium disclosed in Hirokane '038, more particularly the first magnetic layer thereof, cannot inherently disclose the magneto-optical medium, nor the first magnetic layer thereof, as set forth in claim 18.

In view of the foregoing remarks regarding Hirokane '038, Applicants respectfully request withdrawal of the obviousness-type double patenting rejection that is based on Hirokane '038.

35 U.S.C. §102 REJECTIONS

Claim 18 stands rejected under 35 U.S.C. § 102 as being anticipated for the reasons provided on pages 8-12 of the above-referenced Office Action. Because claim 18 was amended in the foregoing amendment, the following discussion refers to the language of the amended claim. However, only those amended features specifically relied on in the following discussion shall be considered as being made to overcome the prior art reference. The following addresses the specific rejections provided in the above-referenced Office Action.

FUJI (JP 10-308043)

Claim 18 stands rejected as being anticipated by Fuji (JP 10-308043-A) for the reasons provided on pages 8-9 of the above referenced Office Action. Applicants respectfully traverse.

The Office Action asserts that Fuji discloses the invention substantially as claimed except that Fuji fails to explicitly disclose the limitation that "said first magnetic layer has a larger magnetic corecivity at a rear part of the light beam spot than a front part of the light beam spot." It is further asserted that the prior art product is substantially identical in structure and function as the magneto-optical recording medium of the present invention and thus is claimed to inherently meet the claimed invention based on the figure (figure 1) included with the Office Action. Applicants respectfully traverse and disagree with the characterization of what is allegedly, inherently disclosed in Fuji.

It first appears that the basis for the rejection is the figure provided with the Office Action, that is asserted as being illustrative of a temperature distribution in a magneto-optical recording medium. In this regard, and with reference to the English Abstract for Fuji, Fuji clearly states that information is reproduced by forming a temperature distribution having *at least two maximum temperatures and one minimum temperature* along an information track. See also paragraph 0007 of the Machine Translation of the reference, which further provides that there are two light beam generation sources. Moreover, paragraph 0008 of the Machine Translation further provides that Drawing 1(b) is a graph about the *temperature distribution formed in the magneto-optical recording medium*. It can hardly be said that Drawing 1(b) of Fuji depicts a gaussian temperature distribution as is illustrated in the figure included with the Office Action. It also is clear from the discussion in Fuji, that the second layer of the medium is raised to its Curie temperature at different positions (positions Xs1 and Xs2), which is inconsistent with the teachings of the subject application.

Applicants also note that Fuji adopts a reproduction method that uses two light beams for heating. However, the medium for use with such a methodology does not differ from those disclosed in the Background portion of the subject application. Namely, according to the medium disclosed in Fuji, the effect of limiting movement of the domain wall from the rear part of the light beam *cannot be achieved without using an auxiliary light beam* for heating.

Applicants thus respectfully submit that it cannot hardly be said that the magneto-optical recording medium disclosed in Fuji is substantially identical in structure and function to the magneto-optical recording medium as set forth in claim 18.

It is respectfully submitted that claim 18 is patentable over the cited reference for the foregoing reasons.

APPLICANT ADMISSIONS

Claim 18 stands rejected as being anticipated by Applicant Admissions for the reasons provided on pages 9-10 of the above referenced Office Action. Applicants respectfully traverse.

The Office Action asserts that Applicants admit of a magneto-optical recording medium that discloses the invention substantially as claimed except that Applicant Admissions fail to explicitly disclose the limitation that "said first magnetic layer has a larger magnetic corecivity at a rear part of the light beam spot than a front part of the light beam spot." It is further asserted that the Applicant admitted prior art product is substantially identical in structure and function as the magneto-optical recording medium of the present invention and thus is alleged to inherently meet the claimed invention based on the figure (figure 1) included with the Office Action. Applicants

respectfully traverse and disagree with the characterization of what is inherently disclosed in Applicant Admissions.

As is clear from the discussion in the subject application regarding the prior art, namely the conventional magneto-optical medium disclosed in figures 8-10 and discussed at pages 3-8 thereof, the described magneto-optical medium is constituted such that when the medium is heated it is subject to two types of domain movements, a domain movement from the front part and a movement from the rear part. It also is clear from the subject application that the phrase "said first magnetic layer has a larger magnetic corecivity at a rear part of the light beam spot than a front part of the light beam spot" when the light beam is emitted onto the magneto-optical recording medium for reproducing while the light beam is moved relatively with respect to the magneto-optical recording medium, is intended to describe a particular medium being characterized by controlling or restricting the movement of a domain wall that is located beyond the light beam spot rear part. In other words and contrary to Applicant Admissions, the movement of such a domain wall is restricted or controlled such that the medium does not exhibit the domain movement from the rear part as is seen with the medium disclosed in Applicants Admissions. For purposes of clarity, Applicants have amended claim 18 to provide that the first magnetic layer is composed to control such rear end movement of a domain wall.

It is further noted that the practical reason why Applicant Admissions fails to explicitly disclose such a property is that such a property or characteristic *does not* exist for the conventional magneto-optical recording medium described in Applicant Admissions.

Applicants thus respectfully submit that it cannot hardly be said that the magneto-optical recording medium described in Applicant Admissions is substantially identical in structure and function to the magneto-optical recording medium as set forth in claim 18.

It is respectfully submitted that claim 18 is patentable over Applicant Admissions for the foregoing reasons.

YONEZAWA (USP 6,122,229)

Claim 18 stands rejected as being anticipated by Yonezawa for the reasons provided on pages 10-12 of the above referenced Office Action. Applicants respectfully traverse.

The Office Action asserts that Yonezawa discloses the invention as claimed except that Yonezawa fails to explicitly disclose the limitations that "said first magnetic layer has a larger magnetic corecivity at a rear part of the light beam spot than a front part of the light beam spot." It is further asserted that the prior art product is substantially identical in structure and function as the magneto-optical recording medium of the present invention and thus is deemed to inherently meet the claimed invention based on the figure (figure 1) included with the Office Action. It also is admitted in the Office Action that Yonezawa fails to explicitly disclose the limitation "said first magnetic layer is formed of a perpendicularly magnetized film having a relatively small wall coercivity and a relatively large wall mobility compared with the third magnetic layer in vicinity of a predetermined temperature." Applicants respectfully traverse and disagree with the characterization of what is asserted as being inherently disclosed in Yonezawa.

Yonezawa discloses a magneto-optical readout system for the readout of data pit recorded on a magento-optical recording medium. It is clear from the discussion in Yonezawa that the magento-optical recording medium used in conjunction with the so-called Domain Wall Displacement Detection (DWDD) system is composed such that when the medium is heated for reproduction of information; the second layer is heated at or above its Curie temperature and the domain wall formed in the high temperature region in the displacement layer (the first layer of the medium) is moved or drawn into a direction of the larger temperature gradient.

It should be first recognized that Yonezawa does not anywhere describe, suggest or refer to the problem of rear end domain wall displacement or movement as is found in the subject application. In fact the entire discussion in Yonezawa relates to the movement of the domain wall in the high temperature region in the displacement layer. In Yonezawa the term high temperature region is related to the region of the medium where the temperature of the switching layer (the 2nd layer) is at or above the Curie temperature thereof.

As to the suggestion that the so-called ghost images in Yonezawa relates to the erroneous reading of two magnetic domains at the same time, one domain at the front end and another domain at the rear end, Applicants respectfully submit that this *inference is incorrect*. The discussion in Yonezawa in which the ghost image language arises describes a shortcoming of a laser DC readout system. Specifically, Yonezawa indicates that a laser DC readout system creates a gentle temperature gradient and that this gentle temperature gradient results in slower velocity in the movement of the domain wall, thereby causing a ghost image to appear in the reproduced waveform. Thus, it is the slow movement of the domain wall that causes the ghost image. Further

Yonezawa does *not* describe, teach or suggest anywhere the problem of reading multiple domains, one domain at the rear end of the light beam and the other domain one at the front end. Rather, the discussion in Yonezawa is completely confined to the domain wall movement in what is referred to in the subject application as the front end of the light beam.

In addition, in the invention disclosed and taught in Yonezawa, the magneto-optical medium is irradiated or heated with a pulsed laser beam of light, which it is asserted makes the temperature gradient greater, larger or steeper (depending upon which portion of Yonezawa one reads), whereby the movement of the domain wall in the displacement layer is facilitated. As such, Yonezawa provides that the domain expansion of the recorded data pits in the memory layer can take place for readout. It also is provided therein that the laser beam is pulsed at a higher frequency than the highest frequency of the data recorded on the magento-optical disk. Although not explicitly stated, it necessarily follows that the steeper temperature gradient associated with the pulsed laser beam would necessarily increase the velocity of the movement of the domain wall.

Applicants thus respectfully submit that it cannot hardly be said that the magneto-optical recording medium described in Yonezawa is substantially identical in structure and function to the magneto-optical recording medium as set forth in claim 18.

It is respectfully submitted that claim 18 is patentable over Yonezawa for the foregoing reasons.

The following additional remarks shall apply to each of the above.

As provided in MPEP-2131, a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Verdegel Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Or stated another way, "The identical invention must be shown in as complete detail as is contained in the ... claims. *Richardson v Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ 2d. 1913, 1920 (Fed. Cir. 1989). Although identify of terminology is not required, the elements must be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990). The Federal Circuit also has indicated that in deciding the issue of anticipation, the trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify *corresponding elements* disclosed in the allegedly anticipating reference (emphasis added, citations in support omitted). *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Company et al.*, 730 F. 2d 1452, 221 USPQ 481,485 (Fed. Cir. 1984). It is clear from the foregoing remarks that the above-identified claim is not anticipated by the cited reference or Applicant Admissions.

It is respectfully submitted that for the foregoing reasons, claim 18 is patentable over either of the two cited reference(s) or Applicant Admissions. Thus this claim satisfies the requirements of 35 U.S.C. §102 and is considered to be allowable.

35 U.S.C. §103 REJECTIONS

Claim 18 stands rejected under 35 U.S.C. §103 as being unpatentable over Yonezawa and further in view of Applicant Admissions. Applicants respectfully traverse as discussed below.

The secondary reference, Applicant Admissions, is being cited for the limited purpose of providing an alleged teaching of the limitation "said first magnetic layer is formed of a perpendicularly magnetized film having a relatively small wall coercivity and a relatively large wall

mobility compared with the third magnetic layer in vicinity of a predetermined temperature." It is further asserted that it would have been obvious to use the first magnetic layer having the foregoing properties in the medium disclosed in Yonezawa in order to form a medium capable of reading out individual recording bits without lowering the readout signal level.

As indicated above, Yonezawa and Applicant Admissions do *not* disclose the features or characteristics that are asserted in the Office Action as being inherently disclosed in Yonezawa or Applicant Admissions. The combination of Yonezawa and Applicant Admissions also do *not* provide any description, teaching or suggestion to provide a magneto-optical recording medium as set forth in claim 18. Moreover, Yonezawa and Applicant Admissions (alone or in combination) do *not* provide any teaching, suggestion or offer any motivation for modifying the magneto-optical recording medium disclosed in Yonezawa so as to yield the magneto-optical recording medium as set forth in claim 18.

As provided in MPEP 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, Yonezawa and Applicant Admissions, alone or in combination, include no such teaching, suggestion or motivation.

Furthermore, and as provided in MPEP 2143.02, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re*

Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Additionally, it also has been held that if the proposed modification or combination would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited reference and the admitted prior art, there is no reasonable expectation of success provided in the reference or the admitted prior art. Also, it is clear from the foregoing discussion that the modification suggested by the Examiner would change the principle of operation in connection with use of the magneto-optical recording medium disclosed in Yonazawa.

It is respectfully submitted that for the foregoing reasons, claim 18 is patentable over the cited reference(s)/ Applicant Admission and thus, satisfy the requirements of 35 U.S.C. §103. As such, this claim is allowable.

CLAIMS 20-25

As indicated above, claims 20-25 were added to more distinctly claim aspects/embodiments of the present invention.

These claims are clearly supported by the originally filed disclosure, including the originally filed claims.

It also is respectfully submitted that these added claims are patentable over the cited prior art on which the above-described rejection(s) are based.

SEPCIFICATION OBJECTIONS

The Examiner objected to the specification of the subject application. The following addresses the specific objections of the Examiner.

TITLE

The Examiner objected to the TITLE as not being descriptive of the invention being claimed and requested correction. The TITLE has been amended in the instant amendment to address the Examiner's objections. As such, the TITLE, as amended, is considered acceptable.

OTHER

The Examiner requested that the cross-noting portion of the subject application (i.e., the continuation data) be updated to reflect the patent number corresponding to the previously identified, allowed, US non-provisional patent application. The cross-noting portion of the subject application has been amended in the foregoing amendment to include the applicable patent number of the parent application.

It is respectfully submitted that for the foregoing reasons, the specification satisfies applicable Patent laws and rules and, therefore is considered acceptable.

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It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

Although claims were added to the subject application, Applicants believe that additional fees are not required. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,
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Date: July 28, 2003

By: _____



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DETAILS OF AMENDMENTS

Please amend the subject application as follows:

IN THE SPECIFICATION

Page 1, delete the TITLE in its entirety and replace therewith the following:

MAGNETO-OPTICAL RECORDING MEDIUM HAVING A REPRODUCING LAYER
COMPOSED TO CONTROL MOVEMENT OF DOMAIN WALLS THEREIN

Page 1, re-write the paragraph inserted and added before line 1 in the Preliminary

Amendment dated November 21, 2001 to read as follows:

This application is a divisional of co-pending U.S. application serial number 09/458,392, filed December 10, 1999, now USP 6,352,765, granted March 5, 2002, the teachings of which are incorporated herein by reference in their entirety.

IN THE CLAIMS

Amend claim 18 to read as follows:

18. (AMENDED) A magneto-optical recording medium comprising at least a first magnetic layer, a second magnetic layer and a third magnetic layer, which are layered in this order, wherein:

said first magnetic layer is formed of a perpendicularly magnetized film having a relatively small wall coercivity and a relatively large wall mobility compared with the third magnetic layer in the vicinity of a predetermined temperature, and

when a light beam whose intensity is controlled to be a predetermined intensity for reproducing a signal is emitted onto the magneto-optical recording medium while the light beam being moved relatively with respect to the magneto-optical recording medium, said first magnetic layer is composed so as to be characterized as having a larger magnetic wall coercivity at a rear part of the light beam spot than a front part of the light beam spot and so as to restrict movement of a domain wall located beyond the light beam spot rear part.

Add new claims 20-25 that read as follows:

20. (NEW) The magneto-optical recording medium of claim 18, wherein the first magnetic layer is composed so that the larger magnetic wall coercivity of the first magnetic layer is characterized as being such as to prevent the domain wall beyond the light beam spot rear part from moving into the light beam.

21. (NEW) The magneto-optical recording medium of claim 18 wherein the first magnetic layer is composed such that when the light beam is emitted onto the magneto-optical recording medium, the domain wall beyond the light beam spot rear part does not move into the light beam and such that another domain wall within the light beam spot front part is moveable within the light beam.

22. (NEW) The magneto-optical recording medium of claim 18, wherein the magnetic wall coercivity at room temperature of the first magnetic layer is less than or equal to 32 kA/m.

23. (NEW) The magneto-optical recording medium of claim 18, wherein the second magnetic layer is composed so that a temperature of a portion of the second magnetic layer within the light beam spot rear portion is at or above a Curie temperature.

24. (NEW) The magneto-optical recording medium of claim 23, wherein the second magnetic layer is composed so as to be characterized as having a Curie temperature that is lower than a Curie temperature of the first magnetic layer.

25 (NEW) The magneto-optical recording medium as set forth in claim 18, wherein said first magnetic layer is composed such that, when the light beam whose intensity is controlled to be a predetermined intensity for reproducing a signal is emitted onto the magneto-optical recording medium while the light beam is being moved relative with respect to the magneto-optical

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recording medium, at the front part of the light beam the domain wall moves and a magnetic domain is enlarged and while at the rear part of the light beam said first magnetic layer is heated to the vicinity of its compensation temperature and the domain wall does not enter into the light beam.

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